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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,916	09/28/2005	Shousheng He	47253-00060USPX	8689
27045	7590	11/14/2008		
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			EXAMINER TRAN, KHANH C	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 11/14/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/534,916

**Applicant(s)**

HE, SHOUSHENG

**Examiner**

KHANH C. TRAN

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 1-15 is/are allowed.  
6) ☒ Claim(s) 16-30 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The Preliminary Amendment filed on 6/22/2005 has been entered. Claims 1-30 are still pending in this Office action.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim(s) **16-28** is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 16, 18-19 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Khullar et al. U.S. Patent Application Publication No. US 2002/0181407 A1 in view of Khayrallah et al. U.S. Patent 6,711,124 B2.

Regarding claim 16, in paragraph [0021], see FIG. 2, Khullar et al. teaches a receiver that uses time dispersion information to enhance the LQC (link quality control). Assuming a cellular system using **burst transmission**, a signal (or burst), including data symbols (i.e., information) and **known training symbols** (i.e., symbols used for synchronization and channel estimation purpose), is received in the antenna. The received signal is fed to a synchronization unit 204 (Sync.) that correlates the received signal with a known training sequence (TS) in order **to find the synchronization position** (i.e., the position within the received signal at which the training sequence starts). Further in paragraph [0023] – [0024], Khullar et al. teaches the correlation in the synchronization unit is performed by computing  $c(k)$ , wherein  $N$  is the synchronization window size and  $n_0$  is the position where the search for the synchronization position starts. Since the time dispersion of the radio channel is unknown, it has to be estimated. This estimation of the time dispersion can be performed in several ways. In view of that, the synchronization window determines an upper bound and a lower bound for the synchronization position.

In paragraph [0025], the time dispersion is to first compute the synchronization position assuming the time dispersion is  $L$  (i.e., the maximum allowed time dispersion in the system) and then use more advanced statistical methods (e.g., an Akaike

Information Criteria (AIC) test) ***to estimate the true time dispersion, which may be performed in a channel estimator.***

Khullar et al. does not expressly disclose the step of “*determining a desired synchronization position further comprises determining an upper (Pu) and a lower (Pl) bound for the synchronization position based on at least a desired synchronization position determined for a previously received signal burst*” claimed in the application claim.

However, because the time dispersion is to first compute the synchronization position assuming the time dispersion is L and then use more advanced statistical methods to estimate the true time dispersion, which may be performed in a channel estimator, therefore, one of ordinary skill in the art would have recognized that the true time dispersion is estimated based on the previously received signal after assuming the time dispersion is L. And hence, the synchronization window size is estimated during the process of estimated the true time dispersion.

Khullar et al. does not expressly disclose the step of “*determining a desired synchronization position of the sequence of training symbols with respect to the received signal burst from a number of estimates (h) of the transmission channel corresponding to a number of selected values of the synchronization position*” claimed in the application claim.

Khayrallah et al. teaches in another US Patent a receiver performs basic channel estimation in each of the time intervals as if there were only one transmit antenna. A channel estimate for each transmit antenna may then be determined at the receiver by

properly combining the channel estimates obtained across all time intervals; see column 2 lines 15-25. In column 5 lines 35-45, because using a greater number of time slots yields better channel estimates through averaging as taught in Khayrallah et al. invention, therefore, one of ordinary skill in the art at the time the invention would have been motivated to modify Khullar et al. teachings to determine synchronization window size based on using a greater number of channel estimates.

Regarding claims 18-19, in paragraph [0003], Khullar et al. discusses Global System for Mobile Communication (GSM) or Enhanced Data rate for GSM Evolutions (EDGE).

Regarding claim 29, claim is rejected on the same ground as for claim 16 because of similar scope.

Regarding claim 30, claim is rejected on the same ground as for claim 16 because of similar scope.

***Allowable Subject Matter***

3. Claims 1-15 are allowed.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li et al. U.S. Patent 7,127,014 B2.

Jones et al. U.S. Patent 6,876,675 B1.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH C. TRAN whose telephone number is (571)272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

***/KHANH C. TRAN/  
Primary Examiner, Art Unit 2611***